Interim Core Map Documentation for Choctaw bean

Version 1
Review Completed: April 2026
Core Map Developer: U.S. Environmental Protection Agency (EPA), Office of Pesticide Programs

Species Summary

The Choctaw bean (Obovaria choctawensis; Entity ID # 4042) is an endangered aquatic invertebrate listed in 2012. This species lives in large creeks and rivers with moderate current over sand to silty-sand substrates in Alabama and Florida. Habitat deterioration and poor water quality has led to low species numbers, and a fragmented population throughout its range. Critical habitat was designated for this species in 2012. Additional information is provided in **Appendix 1**.

Description of Core Map

The core map for the Choctaw bean is based on the critical habitat. The range of the species is not highly refined, including 6,241,785 acres occurring in river drainages of Alabama and Florida. The critical habitat is comprised of six Gulf Coast Mussel Units totaling 2,222 kilometers of stream. The known occurrences of this species fall within the critical habitat. EPA did not find evidence that any key areas for this species exist outside of the designated critical habitat. Promoting aquatic ecosystem management is the best route to protect the species. **Figure 1** depicts the interim core map for the Choctaw bean. The core map represents 10,352 acres.

The Choctaw bean is found in medium creeks to medium rivers in stable substrates of silty sand to sandy clay with moderate currents, which is captured in the species designated critical habitat. The species is believed to be a long-term brooder, with females gravid from late summer or autumn to the following summer. Its fish host is currently unknown. Landcover categories within the core map area are included in **Table 1**. Landcover within the core map is predominantly woody wetlands and open water, which is consistent with the habitat of this species.

The core map developed for the Choctaw bean is considered interim. This core map will be used to develop pesticide use limitation areas (PULAs) that include the Choctaw bean. This core map incorporates information developed by the U.S. Fish and Wildlife Service (FWS) and made available to the public; however, the core map has not been formally reviewed by FWS. This interim core map may be revised in the future to incorporate expert feedback from FWS. This interim core map has a “limited” (2) best professional judgment classification because it’s made up of the critical habitat with no additions or subtractions, with data sources consistently supporting the core map. However, areas the entirety of the species range is not included in the core map based on interpretation of FWS documents. This core map does not replace or revise any range or designated critical habitat developed by FWS for this species.

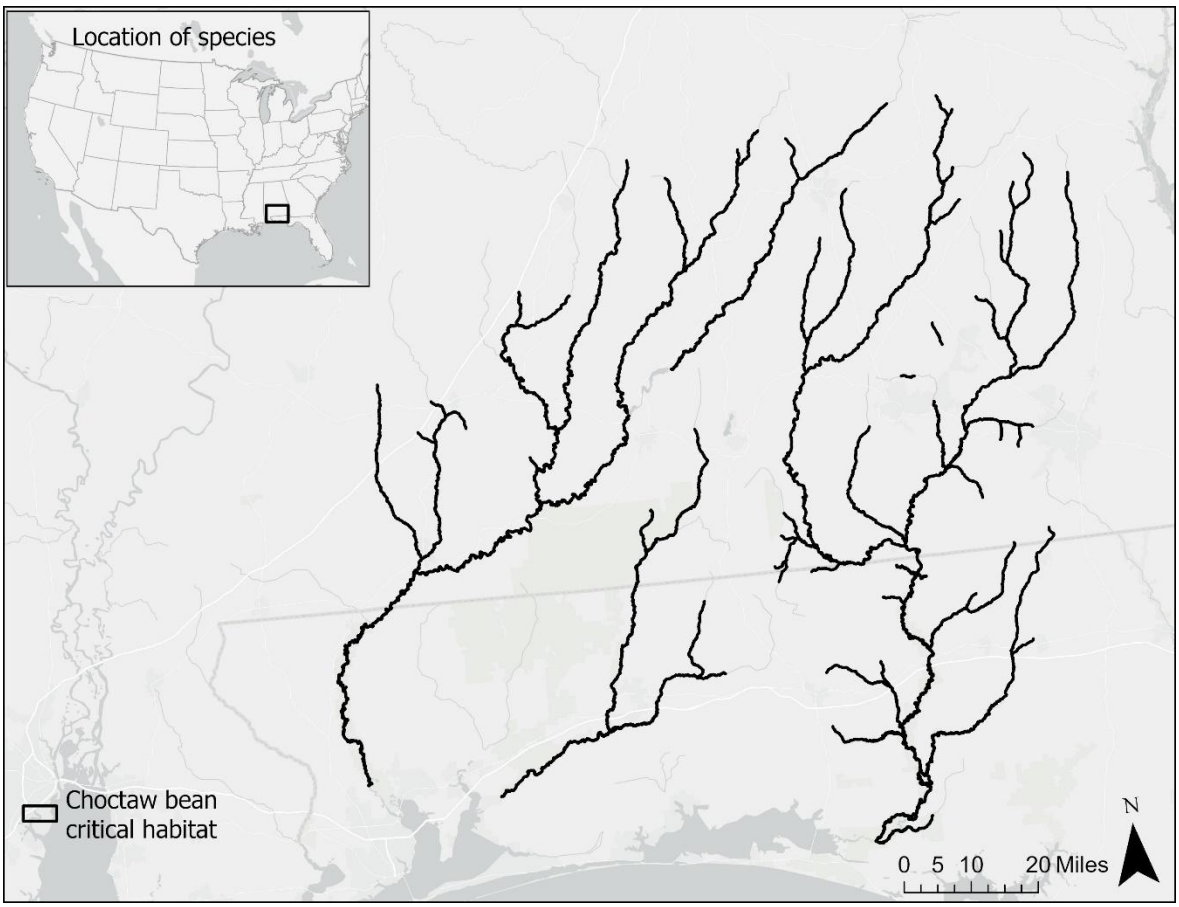

Figure 1. Interim core map for the Choctaw bean. The total acreage of the core map is 10,352 acres.

Table 1. Percentage of Interim Core Map Represented by NLCD[1] Land Covers and Associated Example Pesticide Use Sites/Types.

Example pesticide use sites/types	NLCD Landcover (Value)	% of core map represented by landcover
Forestry	Deciduous Forest (41)	0%
Forestry	Evergreen Forest (42)	3%
Forestry	Mixed Forest (43)	2%
Agriculture	Pasture/Hay (81)	0%
Agriculture	Cultivated Crops (82)	0%
Mosquito adulticide, residential	Open space, developed (21)	0%
Mosquito adulticide, residential	Developed, Low intensity (22)	0%
Mosquito adulticide, residential	Developed, Medium intensity (23)	0%
Mosquito adulticide, residential	Developed, High intensity (24)	0%
Invasive species control	Woody Wetlands (90)	59%
Invasive species control	Emergent Herbaceous Wetlands (95)	2%
Invasive species control	Open water (11)	32%
Invasive species control	Grassland/herbaceous (71)	0%
Invasive species control	Scrub/shrub (52)	0%
Invasive species control	Barren land (rock/sand/clay; 31)	2%
Total Acres	**Interim Core Map Acres**	**10,352**

Evaluation of Known Location Information

There are four datasets with known location information for this species:

- Descriptions of locations provided by FWS
- Occurrence locations in iNaturalist
- Occurrence locations in the Global Biodiversity Information Facility (GBIF)
- Occurrence locations in NatureServe

EPA evaluated these four sets of data before selecting the type of and developing the core map. FWS appeared to have the best available occurrences information, providing a map that depicted the current known locations of the Choctaw bean. The FWS known occurrences are in the Escambia, Yellow, and Choctawhatchee River basins in Alabama and Florida (**Figure A1-3 in Appendix 1**). Occurrences in iNaturalist, GBIF, and NatureServe did not support further expanding the core map outside of the FWS critical habitat. **Appendix 1** includes more information on the available known location information.

[1] Dewitz, J., 2023, National Land Cover Database (NLCD) 2021 Products: U.S. Geological Survey data release, https://doi.org/10.5066/P9JZ7AO3

Approach Used to Create Core Map

The core map was developed using the "Process EPA Uses to Develop Core Maps for Draft Pesticide Use Limitation Areas for Species Listed by the U.S. Fish & Wildlife Service (FWS) and their Designated Critical Habitats"[2] (referred to as "the process"). This core map was developed by EPA and was developed using the four steps described in the process document:

1. Compile available information for a species
2. Identify core map type
3. Develop the core map for the species
4. Document the core map

For step 1, EPA compiled available information for the Choctaw bean from FWS as well as observational information available from various publicly available sources (discussed in previous section). The information compiled for the Choctaw bean is included in **Appendix 1**. Influential information that impacted the development of the core map included:

- Current existing populations occur in locations consistent with the critical habitat.

For step 2, EPA used the compiled information to identify the core map type, including the critical habitat, 5-year status review, recovery plan, and known location information. Based on this information, EPA used the designated the critical habitat as the Choctaw bean core map.

For step 3, EPA used the designated critical habitat provided by FWS for the Choctaw bean. EPA downloaded the critical habitat from FWS's Environmental Conservation Online System (ECOS) (https://ecos.fws.gov/ecp/species/5038).

Discussion of Approaches and Data that were Considered but not Included in Core Map

EPA did not explore approaches other than those described in this documentation.

[2] Dated 2024, available online at: https://www.epa.gov/endangered-species/process-epa-uses-develop-core-maps-pesticide-use-limitation-areas

Appendix 1. Information Compiled for Species

1. **Recent FWS Documents/Links**
   - Status Review 2022
   - Recovery Outline 2012
   - Critical Habitat 2012

2. **Background information**
   - **Status**: Endangered in 2012
   - **Resiliency, redundancy, and representation (the 3Rs):**
     - While there is no species status assessment available, the Choctaw bean faces a high degree of threat with a low recovery potential. The problems affecting these rivers and streams are difficult to remove or mitigate as threats are numerous, complex, and encompass many landowners (Recovery Outline 2012).
   - **Habitat, Life History, and Ecology**
     - **Habitat**:
       - The Choctaw bean is found in river drainages of Alabama and Florida in medium creeks to medium rivers with stable substrates of silty sand to sandy clay and moderate currents
       - They also require water quality, including temperature (not greater than 32 C), pH (between 6.0 to 8.5), oxygen content (not less than 5.0 mg/L), hardness, turbidity, and other chemical characteristics necessary for normal behavior, growth, and viability of all life stages, and the presence of fish hosts (Critical Habitat 2012).
     - **Diet:**
       - Larvae (glochidia) of freshwater mussels are generally parasitic on fish. Juveniles typically burrow completely beneath the substrate surface and are pedal (foot) feeders bringing food particles that adhere to the foot while it is extended outside the shell inside the shell for ingestion. Adults are filter feeders presumably consuming fine particulate organic matter, primarily detritus, zooplankton, and/or phytoplankton. (Critical Habitat 2012)
     - **Reproduction/pollinators**:
       - The Choctaw bean is believed to be a long-term brooder, with females gravid from late summer or autumn to the following summer. Its fish host is currently unknown (Critical Habitat 2012). The species exhibits low to moderate fecundity (Status Review 2022).
   - **Taxonomy**
     - Aquatic invertebrate; clam
   - **Relevant Pesticide Use Sites in FWS Documents**
     - Pesticide residues enter streams by surface runoff. Cotton, peanuts, corn and soybean crops grown within the species range are associated with high pesticide use, which can be lethal to the mussels, particularly at their highly sensitive early life stages (Critical Habitat 2012).

- **Relevant Recovery Criteria and Actions** (Recovery Outline 2012)
  - Use, to the fullest extent practical, existing legislation, regulations and policies to protect listed populations and their habitats and develop and encourage a stream management strategy that places high priority on conservation and restoration.
  - Encourage voluntary stewardship through joint initiatives and individual actions as the only practical and economical means of minimizing adverse effects of private land use and activities within watersheds.
  - Continue to promote research efforts on life histories, sensitivities, and requirements of these imperiled mussel species and promote facilities to maintain, study and propagate them.

3. **Description of the species range**
   - The range was last updated 02-04-2022.
   - The range is 6,241,785 acres comprised of river drainages in Alabama and Florida including the Escambia, Yellow, and Choctawhatchee River basins.

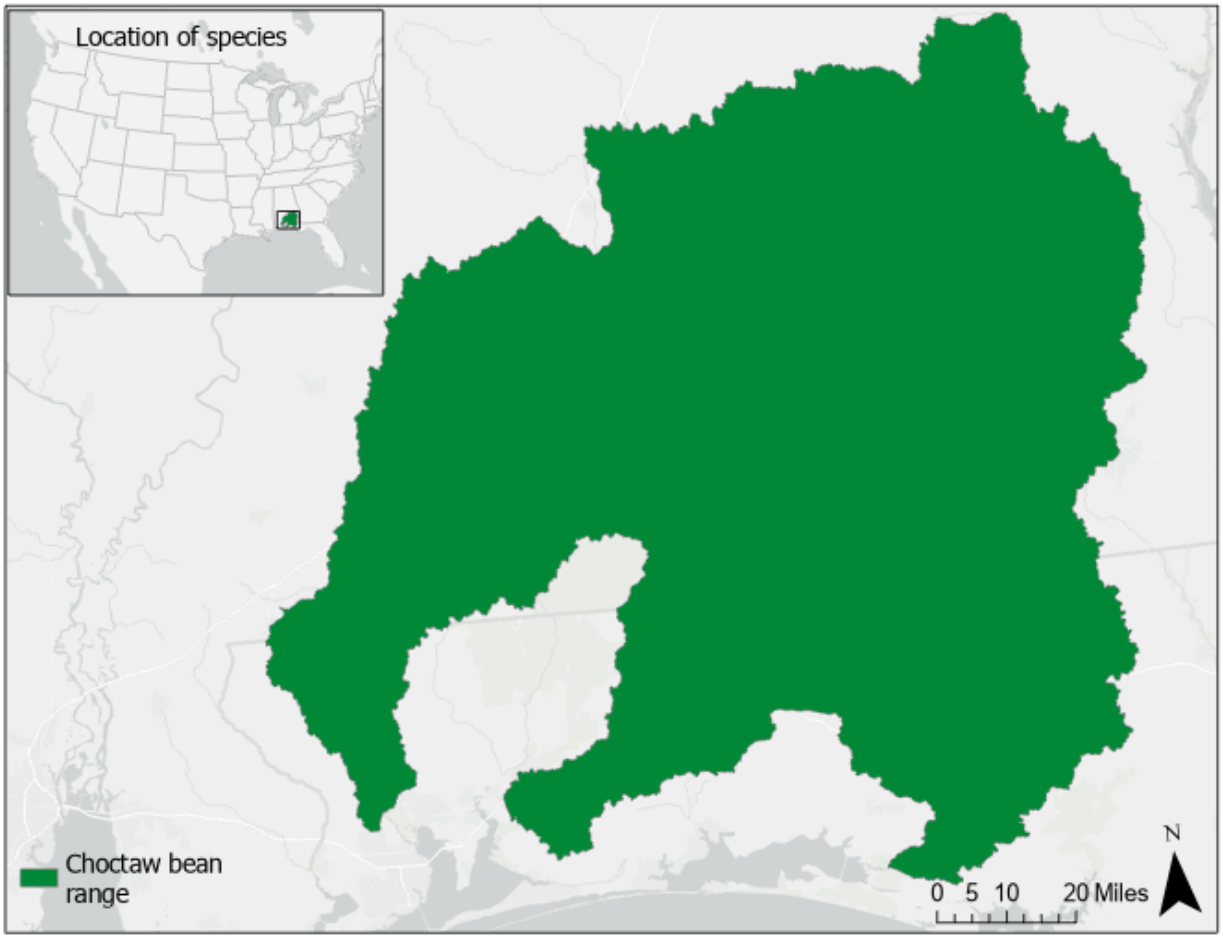

Figure A1-1. FWS Range of the Choctaw bean.

4. **Critical Habitat**
   - The critical habitat was designated in 2012.
   - It is comprised of six Gulf Coast Mussel Units totaling 2,222 kilometers of stream.

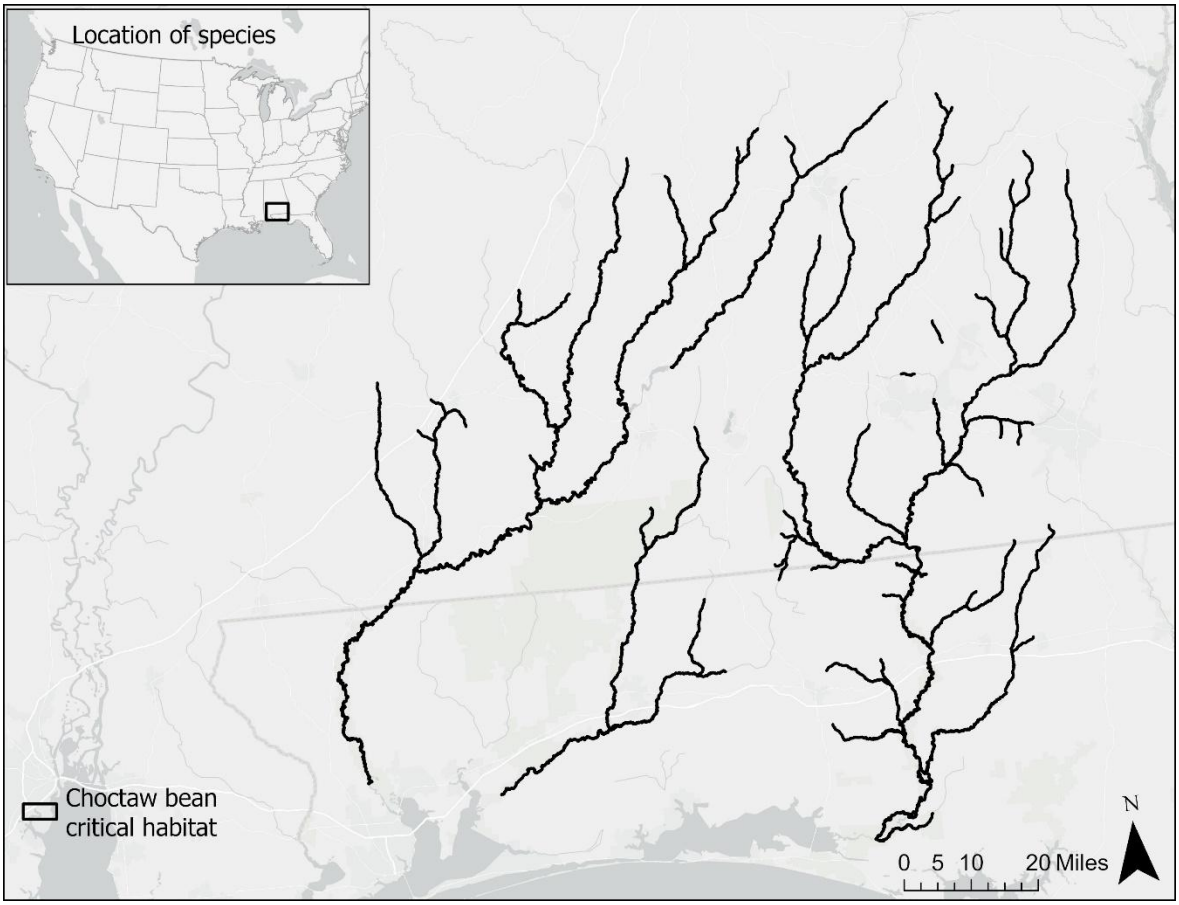

Figure A1-2. FWS critical habitat of the Choctaw bean (black lines) comprising 10,352 acres.

5. **Known Locations**
   - **Known Locations Described in FWS Species Review 2022 Document**
     - The Escambia, Yellow, and Choctawhatchee River basins in Alabama and Florida
     - Escambia River basin: The Choctaw bean was detected in all five subbasins since 2000 with five live individuals in the *Upper and Lower Conecuh, Sepulga, a*nd *Patsiliga* subbasins and 196 live individuals recently detected in the *Escambia* subbasin.
     - Yellow River basin: The species occurs in five scattered locations on the Yellow River where 12 individuals have been detected since 2000.
     - Choctawhatchee River basin: 74 individuals were detected in the *Pea* and *Upper Choctawhatchee* subbasins since 2000. Recently 208 individuals were surveyed in the *Lower Choctawhatchee* subbasin.
     - **Figure A1-3** depicts recent survey results for the Choctaw Bean from FWS' Status Review (2022).
     - When considering the locations of the current extant populations (**Figure A1-3**), they are consistent with the location of the critical habitat (**Figure A1-2**).

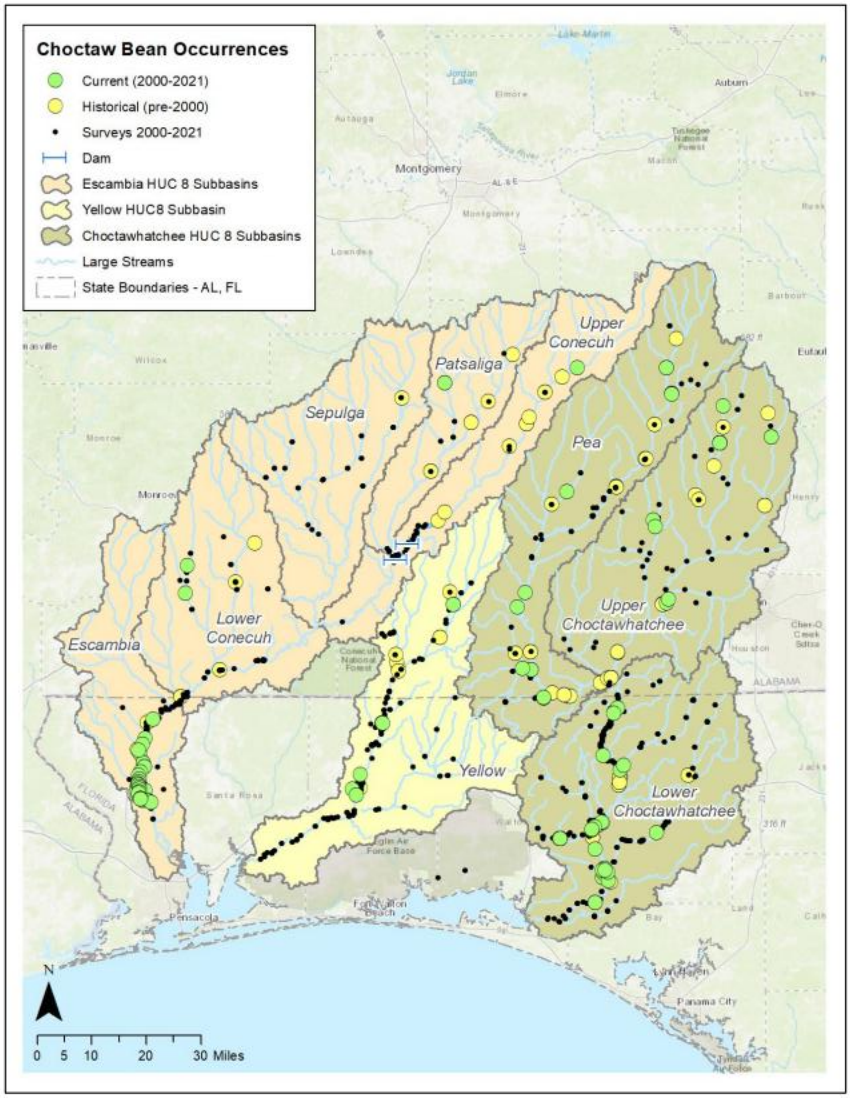

Figure A1-3. Known locations of the Choctaw bean from Species Review (2022).

- **Occurrences Described in Public Datasets**
  - **iNaturalist**
    - Accessed here on 11/14/2025
  - **Occurrences in NatureServe**
    - Accessed here on 11/14/2025
  - **Occurrences in GBIF**
    - Accessed here on 11/14/2025
    - There are 38 research grade observations available from 1933-1999, none of which include coordinates.

- Collectively, the occurrence data from iNaturalist, GBIF, and NatureServe do not support expanding the core map beyond the critical habitat.